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| APPLICATION NO | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO | CONFIRMATION NO |
|----------------|-------------|----------------------|--------------------|-----------------|
| 09.827.462 | 04/06/2001 | Volker Dellinger | H60-076 DIV | 7915 |

7590 03/05/2003

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EXAMINER

MARKHAM, WESLEY D

| | |
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| ART UNIT | PAPER NUMBER |
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1762

DATE MAILED: 03/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/827,462

Applicant(s)

DERFLINGER ET AL

Examiner

Wesley D Markham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 23 December 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 57-72 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 57-72 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/253,212.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application (i.e., as paper #7 on 12/23/2002 with a certificate of mailing dated 12/16/2002) after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/23/2002 (i.e., paper #8, amendment C) has been entered.

Response to Amendment

2. Acknowledgment is made of applicant's amendment C, filed as paper #8 on 12/23/2002 (with a certificate of mailing dated 12/16/2002), in which missing page 10 of the "clean version" of the substitute specification was provided, Claims 39 – 56 were canceled, and Claims 57 – 72 were added. Claims 57 – 72 are currently pending in U.S. Application Serial No. 09/827,462, and an Office Action on the merits follows.

Drawings

3. This application has been filed with informal drawings which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.

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Specification

4. The objection to the specification, set forth in paragraph 3 of the previous Office Action (i.e., the final Office Action, paper #6, mailed on 7/16/2002), is withdrawn in light of applicant's amendment C in which previously missing page 10 of the "clean version" of the substitute specification was provided.

Claim Objections

5. The objections to Claims 39, 55, and 56, set forth in paragraph 5 of the previous Office Action, are withdrawn in light of applicant's amendment C in which the aforementioned claims were canceled.
6. Claim 72 is objected to because of the following informalities: The word "for" in line 4 of Claim 72 appears to be misspelled "foe". Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. The rejection of Claims 39 – 56 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, set forth in paragraphs 8 – 11 of the

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previous Office Action, is withdrawn in light of applicant's amendment C in which the aforementioned claims were canceled.

9. Claims 61, 62, 64, 65, 71, and 72 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
10. Regarding Claim 61 (from which Claim 62 depends), the claim requires, in part, "...the step of forming said first hard material coating to have a content of said at least two metal elements that is different from said content of said metal elements in said second hard material coating by at most 2at% by establishing a ratio of bias voltage applied to said tool body of both tool types during said coating process..." However, independent Claim 57 (from which Claim 61 depends) requires that the first hard material coating of the second type of cutting tool have a content of the at least two metal elements different from the content of the at least two metal elements of the second hard material coating by more than 2at%. This limitation is mutually exclusive from the limitation of Claim 61 discussed above. Specifically, how can the second type of cutting tool have coatings in which the content of the metal elements differs by both at most 2at% and more than 2at%? As such, the scope of Claim 61 is unclear and the claim is vague and indefinite. For the purposes of examination only, the examiner has interpreted the phrase "of both tool types" in line 6 of Claim 61 to be equivalent to "of said first type of cutting tool" in order to correspond to Claim 57, from which Claim 61 depends.

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11. Regarding Claim 64, the claim requires, in part, "... applying said first hard material coating to have a content of said at least two metal elements to be different from said content of said at least two metal elements of said second hard material coating by more than 2at% for tool bodies of the first type of cutting tool..."

However, independent Claim 57 (from which Claim 61 depends) requires that the first hard material coating of the first type of cutting tool have a content of the at least two metal elements different from the content of the at least two metal elements of the second hard material coating by at most 2at%. This limitation is mutually exclusive from the limitation of Claim 64 discussed above. Specifically, how can the first type of cutting tool have coatings in which the content of the metal elements differs by both at most 2at% and more than 2at%? As such, the scope of Claim 64 is unclear and the claim is vague and indefinite. For the purposes of examination only, the examiner has interpreted the phrase "of the first type of cutting tool" in lines 5 – 6 of Claim 64 to be equivalent to "of the second type of cutting tool" in order to correspond to Claim 57, from which Claim 64 depends.

12. The terms "larger cross-sectional area", "lower cutting rate", "smaller cross-sectional area", and "larger cutting rate" in Claim 65 are relative terms that render the claim indefinite. The terms are not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Specifically, it is unclear what range of cross-sectional areas are "larger" and what range are

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"smaller". It is also unclear what range of cutting rates are "lower" and what range are "larger". Further and importantly, who makes this determination?

13. Regarding Claims 71 and 72, the phrases "for higher adhesive strength of the first hard material coating than hardness of said first hard material" (Claim 71), "for higher adhesive strength of the first hard material coating than hardness of said first hard material coating" (Claim 72), and "for higher hardness of said first hard material coating than adhesive strength of said first hard material coating" (Claim 72) render the claims vague and indefinite. Specifically, it is unclear how an "adhesive strength" of a coating can be higher than a "hardness" of the coating, or vice versa. Adhesive strength and hardness are two different, distinct physical properties used to describe a coating, and therefore it is unclear how one can be either higher or lower when compared to the other. As such, the scope of Claims 71 and 72 is unclear, and the claims are vague and indefinite.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

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were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

16. The rejections of Claims 39 – 56 under 35 U.S.C. 103(a), set forth in paragraphs 17 – 25 of the previous Office Action, are withdrawn in light of applicant's amendment C, in which Claims 39 – 56 were canceled.
17. Claims 57 – 60, 63, and 65 – 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leyendecker et al. (USPN 5,272,014).
18. Regarding independent Claim 57, Leyendecker et al. teach a method for producing two different types of cutting tools (i.e., a first type with a "homogeneous" coating and a second type with an "inhomogeneous" coating) by applying hard material coatings for enclosing each of the tools (Col.2, lines 61 – 66 and Example 1), the method comprising the steps of, for both types of cutting tools, providing on a first region of the tool body that contains at least one first cutting edge, a first hard material coating by means of a plasma vacuum coating process; providing on a second region of the tool body that is adjacent to said first region, a second hard material coating by means of a plasma vacuum coating process (Abstract, Example 1, Figures 1 – 2, and Col.3, lines 6 – 26), selecting as hard material for the first and

second hard material coatings, a material selected from the group consisting of carbides, oxides, oxycarbides, nitrides, nitrocarbides, oxinitrides, and nitro oxycarbides of at least two of the metal elements Ti, Zr, Hf, V, Nb, Ta, Cr, Mo, W, and Al (Col. 1, lines 50 – 54, Col. 3, lines 45 – 58, and Example 1); coating one cutting tool (i.e., a drill which the examiner has interpreted as a “first type of cutting tool”) with a (Ti,Al)N coating that is homogeneous in both the first region of the tool body (i.e., the edge region) and the second region of the tool body (i.e., the region away from the edges) (Col. 4, lines 45 – 51), and coating a second cutting tool (i.e., a drill which the examiner has interpreted as a “second type of cutting tool”) with a (Ti,Al)N coating that is inhomogeneous when comparing the first region of the tool body (i.e., the edge region) and the second region of the tool body (i.e., the region away from the edges) (Example 1). The inhomogeneous coating of Leyendecker et al. has a content of the at least two metal elements in the edge region (i.e., the first hard material coating) different from the content of the two metal elements in the second region (i.e., the second hard material coating) by more than 2at% (Abstract and Figures 1 – 2), as required by the applicant’s claims. Leyendecker et al. do not explicitly teach that the “homogeneous” coating of Example 1 (i.e., the coating on the “first type of cutting tool”) is equivalent to a coating wherein the first hard material coating (i.e., the coating in the edge region or the tool) has a content of the at least two metal elements of at most 2 at% different from the content of the metal elements in the second hard material coating (i.e., the coating in the region away from the edges). However, Leyendecker et al. teach that a coating which is not

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homogeneous has a concentration difference of at least about 2 at% (Abstract).

Therefore, it would have been obvious to one of ordinary skill in the art to choose appropriate deposition parameters to obtain a coating which has a concentration difference of at most 2 at% in the comparative example of Example 1 (i.e., the homogeneous coating on the drill) with the reasonable expectation that, if the concentration difference was more than 2 at%, the coating would be considered by Leyendecker et al. to be not homogeneous. This situation (i.e., the situation wherein the concentration difference is more than 2 at%) would have defeated the purpose of the comparative example of Example 1. Further, Leyendecker et al. do not explicitly teach that the first type of cutting tool (i.e., the drill with the homogeneous coating) is for working a material with a hardness of at most 45 Rockwell (HRC) and a tensile strength of up to at most 1500 N/mm², and the second type of cutting tool (i.e., the drill with the inhomogeneous coating) is for working a material with a hardness of more than 45 Rockwell (45 HRC) and a tensile strength of more than 1500 N/mm². However, as set forth in the discussion above, the two coatings ("homogeneous" and "inhomogeneous") taught by Leyendecker et al. are equivalent to the two coatings claimed by the applicant. Thus, as the coatings of Leyendecker et al. and the applicant's claims are equivalent, their properties would also be equivalent. Importantly, the statements in Claim 57 that the first type of cutting tool is "for working a material with a hardness of at most 45 Rockwell and a tensile strength of up to at most 1500 N/mm²" and the second type of cutting tool is "for working a material with a hardness of more than 45 Rockwell and a tensile strength

of more than 1500 N/mm² are simply statements of intended use. As the drills of Leyendecker et al. are coated using the method / coatings claimed by the applicant, the drills of Leyendecker et al. having the "homogeneous" and "inhomogeneous" coatings would have been capable of performing the claimed functions (i.e., working the respective materials having hardness and tensile strength values claimed by the applicant). Please note that the applicant's claims do not require actually working the materials having the recited hardness and tensile strength values; the claims only require that the cutting tools are for working the aforementioned materials (i.e., a statement of intended use).

19. Leyendecker et al. also teach / suggest all the limitations of Claims 58 – 60, 63, and 65 – 72 as set forth above in paragraph 18 and below, including a method wherein / further comprising:

- Claim 58 – Depositing at least as a part of the hard material coatings a (Ti,Al)N coating on the tool body of both tool types (Col.3, lines 48 – 58, and Example 1).
- Claim 59 – Providing an intermediate layer between the tool body and the hard material coatings on both tool types (Col.4, lines 7 – 19 and Example 1).
- Claim 60 – The hard material coatings are deposited by arc evaporation. Specifically, Leyendecker et al. teach the embodiment of coating the tools using a target sputtering method in general without explicitly teaching arc evaporation (Example 1). Leyendecker et al. also teach that electric arc

evaporation is a specific type of target sputtering method that is used to deposit hard films on tools (Col. 1, lines 28 – 36). Therefore, it would have been obvious to one of ordinary skill in the art to use arc evaporation as the target sputtering method in the process of Leyendecker et al. with the reasonable expectation of success (i.e., successfully using a given species of the genus of target sputtering methods taught by Leyendecker et al.).

- Claim 63 – The first hard material coating has a content of the at least two metal elements at most 2 at% different from the content of the metal elements in the second hard material coating for tool bodies of the first type of cutting tool comprising one of: drills, roughing milling cutters, peripheral milling cutters, tools for hobbing machines, or turning tools. Specifically, Leyendecker et al. teach coating a drill with a “homogeneous” (Ti,Al)N coating (comparative example in Example 1) (see paragraph 18 above).
- Claim 65 – See paragraph 18 above. Specifically, Leyendecker et al. teach coating drills with both homogeneous and inhomogeneous coatings (Example 1). The statements that the tools are “for cutting with a larger cross-sectional area of the cut at a lower cutting rate” and “for cutting with smaller cross-sectional area of the cut at a larger cutting rate” are simply statements of intended use and are not read into the claim. In addition, as the method / coating(s) of Leyendecker et al. are the same as the method

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/ coating(s) claimed by the applicant, the cutting tools of Leyendecker et al. would have been capable of either "cutting with a larger cross-sectional area of the cut at a lower cutting rate" or "cutting with smaller cross-sectional area of the cut at a larger cutting rate" as claimed by the applicant. Please note that Leyendecker et al. teach that both methods of coating tool components claimed by the applicant (i.e., the "homogeneous coating" and the "inhomogeneous coating" having a different composition at the edge of the tool than elsewhere on the tool body) were known in the art at the time of the applicant's invention (whole document). Leyendecker et al. also teach both methods have advantages and disadvantages (Col.3, lines 28 – 40). It would have been obvious to one of ordinary skill in the art to utilize either known prior art method of coating cutting tools with the reasonable expectation of (1) success, as Leyendecker et al. teach that both methods can be successfully performed, and (2) obtaining the benefits of using one method over the other. The choice of which method to use (i.e., "homogeneous" or "inhomogeneous") would depend on which advantages the purveyor in the art deemed more important in each particular situation. The mere observation of still another beneficial result in an old process cannot form the basis of patentability (*Allen et al. V Coe*, 57 USPQ 136).

- Claim 66 - The tool body for the first type of cutting tool is for working quenched steels, highly alloyed steels, stainless steels, or non-ferrous

metals. This limitation is not explicitly taught by Leyendecker et al.

However, simply stating that the tool body is for working quenched steels, highly alloyed steels, stainless steels, or non-ferrous metals is a statement of intended use and is not read into the claim. In addition, as the drill of Leyendecker et al. is coated using the method / coating claimed by the applicant, the drill of Leyendecker et al. having the "homogeneous" coating (i.e., the first type of cutting tool) would have been capable of performing the claimed function.

- Claims 67 – 68 – Leyendecker et al. teach coating a drill with a homogeneous (Ti,Al)N coating (Example 1). One of ordinary skill in the art would have coated the drill with a coating having a concentration difference of at most 2 at% in order to achieve the homogeneous coating of Leyendecker et al. for the reasons set forth in paragraph 18 above. In addition, the limitations that the cutting edge of the tool is being loaded simultaneously with different cutting speeds relative to a worked workpiece (Claim 67), and that the minimum cutting speed occurs at a tip of the drill and higher cutting speed occurs at a circumference of the drill (Claim 68) appear to be limitations which are met by any generic drill. As such, the homogeneously coated drill of Leyendecker et al. meets these limitations. However, if not all drills meet these limitations, it would have been obvious to one of ordinary skill in the art to coat the drills that do meet the aforementioned limitations with the reasonable expectation of

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success, as Leyendecker et al. teach the coating of drills in general, which would have been expected to encompass a specific species (i.e., type) of drill.

- Claim 69 - The tool body of the second type of cutting tool is for a tool for hard chipping. Specifically, Leyendecker et al. teach that tools such as milling tools, punches, and drills are coated by their process (Col.2, lines 61 – 68, and Col.3, lines 1 – 10). Simply stating that the tools are for “hard chipping” is a statement of intended use and is not read into the claim. In addition, as the method / coating of Leyendecker et al. is the same as the method / coating claimed by the applicant, the tools of Leyendecker et al. would have been capable of “hard chipping” as claimed by the applicant.
- Claim 70 – The first and second hard material coatings comprise at least one (Ti,Al)N layer (Figures 1 – 2, Col.3, lines 48 – 58, and Example 1).
- Claim 71 – Leyendecker et al. do not explicitly teach that the composition difference is at most 1 at% for the first type of cutting tool for “higher adhesive strength” of the coating than “hardness” of the coating. However, it would have been obvious to one of ordinary skill in the art to coat the drill with a coating having a composition difference of at most 2 at% in order to achieve the homogeneous coating of Leyendecker et al. for the reasons set forth in paragraph 18 above. Further, it would have been obvious to one of ordinary skill in the art to coat the drill of

Leyendecker et al. in the comparative example of Example 1 to have a composition difference of not only at most 2 at%, but of at most 1 at%, with the reasonable expectation of obtaining a drill having as "homogeneous" a coating as possible as desired by Leyendecker et al. in their comparative example of Example 1. Further, Leyendecker et al. do not explicitly teach that (1) the "homogeneous" coating of Example 1 (i.e., the comparative example of the first type of cutting tool) is for higher adhesive strength of the coating than hardness of the coating and (2) that the "inhomogeneous" coating of their invention (i.e., the coating on the second type of cutting tool) is for higher hardness of the coating than adhesive strength of the coating. However, as set forth in the discussion above, the two coatings ("homogeneous" and "inhomogeneous") taught by Leyendecker et al. are equivalent to the two coatings claimed by the applicant. Thus, as the coatings of Leyendecker et al. and the applicant's claims are equivalent, their properties would also be equivalent, and therefore the "homogeneous" coating of Leyendecker et al. must inherently fulfill the requirement of a higher adhesive strength of the coating than hardness of the coating, and the "inhomogeneous" coating of Leyendecker et al. must inherently fulfill the requirement of a higher hardness of the coating than adhesive strength of the coating. Please note that the mere observation of still another beneficial result in an old

process cannot form the basis of patentability (*Allen et al. V Coe*, 57 USPQ 136).

- Claim 72 – See paragraph 18 above and the discussion of Claim 71 above.

20. Claim 61 is rejected under 35 U.S.C. 103(a) as being unpatentable over Leyendecker et al. (USPN 5,272,014) in view of Hofmann et al. (USPN 5,330,853).

21. Leyendecker et al. teach all the limitations of Claim 61 as set forth in paragraph 18 above, except for a method further comprising the step of forming the coating having a composition difference of at most 2 at% by establishing a specific claimed ratio of substrate bias voltage to partial pressure of the reactive gas during the vacuum coating process. However, Leyendecker et al. do teach coating a drill with a homogeneous (Ti,Al)N coating (Example 1). One of ordinary skill in the art would have coated the drill with a coating having a concentration difference of at most 2 at% in order to achieve the homogeneous coating of Leyendecker et al. for the reasons set forth in paragraph 18 above. Leyendecker et al. also teach that, traditionally, coating process conditions were adjusted in order to form a homogeneous coating which was believed to afford superior performance (Col.1, lines 59 – 63), and that known coating techniques utilize a weak electric field to prevent inhomogeneity at the edges of the substrate (Col.2, lines 16 – 20). Hofmann et al. teach that, in the field of depositing protective (Ti,Al)N coatings on tool bodies, the partial pressure of the reactive gas (i.e., nitrogen) and the substrate bias voltage

are particularly influential deposition parameters (i.e., they are result / effective variables) (Col.1, lines 33 – 47). Therefore, it would have been obvious to one of ordinary skill in the art to optimize the result / effective variables of partial pressure of the reactive gas (i.e., nitrogen) and the substrate bias voltage through routine experimentation. By optimizing both variables, the ratio of the variables would have inherently been optimized as well. The specific ranges of the substrate bias voltage and the partial pressure of the reactive gas would depend on whether the purveyor in the art desired a uniform coating or a coating having a composition difference at the edge of the tool. Both embodiments are taught by Leyendecker et al. in Example 1.

22. Claim 62 is rejected under 35 U.S.C. 103(a) as being unpatentable over Leyendecker et al. (USPN 5,272,014) in view of Hofmann et al. (USPN 5,330,853), and in further view of Munz et al. (USPN 4,426,267).
23. The combination of Leyendecker et al. and Hofmann et al. teaches all the limitations of Claim 62 as set forth in paragraphs 18 and 21 above, except a method that includes selecting ground potential as the electric reference potential. Leyendecker et al. and Hofmann et al. are silent in regards to this point, but both teach utilizing a bias voltage. In addition, Munz et al. teach that, in the field of sputter coating a substrate, it is known to choose a substrate bias voltage with respect to ground (Col.3, lines 32 – 39, Col.4, lines 40 – 42). Therefore, it would have been obvious to one of ordinary skill in the art to do so with the reasonable expectation of success

(i.e., successfully choosing a known type of reference potential out of the genus of reference potentials in general).

24. Claim 64 is rejected under 35 U.S.C. 103(a) as being unpatentable over Leyendecker et al. (USPN 5,272,014) in view of Breuer et al. (USPN 5,125,775).
25. Leyendecker et al. teach all the limitations of Claim 64 as set forth in paragraph 18 above, except a method wherein the coating having a composition difference of more than 2 at% between the first hard material coating and the second hard material coating is deposited on tool bodies of the first type of cutting tool comprising one of: front-end milling cutters or ball-end milling cutters. However, Leyendecker et al. teach that the inhomogeneous coating (i.e., the coating wherein the first hard material coating has a content of at least two of the metal elements to be different from the content of the two metal elements of the second hard material by more than 2at%) is useful when coating cutting tools, milling tools, shaping tools, punches, drills, and similar apparatuses (Col.2, lines 61 – 68, and Col.3, lines 1 – 10). Regarding Claim 64, Breuer et al. teach that ball-end milling cutters were known at the time of the applicant's invention (Col.1). It would have been obvious to one of ordinary skill in the art to coat the ball-end milling cutters of Breuer et al. with the coating method / composition of Leyendecker et al. with the reasonable expectation of (1) success, as Leyendecker et al. teach that cutting tools and milling tools in general are coated by their invention, and (2) obtaining the wear-resistance

benefits of the coating of Leyendecker et al. on the specific cutting tools taught by Breuer et al.

Response to Arguments

26. Applicant's arguments filed on 12/23/2002 have been fully considered but they are not persuasive.
27. The applicant's arguments are summarized as follows. The applicant argues that, while Leyendecker does in fact teach both coating types (i.e., "homogeneous" and "inhomogeneous"), Leyendecker fails to specify how drilling was performed and on which material drilling was performed. The applicant then states that Leyendecker's findings / results are only valuable if one specifies for which kind of operation and material the drills are used for. In closing, the applicant argues that it is not obvious to recognize when homogeneous coating and when inhomogeneous coating are to be applied to reach most favorable results.
28. In response, the examiner respectfully notes that each and every limitation of the applicant's claims are taught / reasonably suggested by the prior art as applied in paragraphs 18 – 25 above. In other words, while the applicant's concept may not be explicitly disclosed by Leyendecker et al., Leyendecker et al. do teach or reasonably suggest all of the process steps and limitations of the applicant's claims, and thus the Leyendecker et al. reference provides a proper obviating basis under 35 U.S.C. 103(a). Importantly and regarding the crux of the applicant's arguments drawn to how drilling was performed and on which material drilling was performed in

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Leyendecker et al., the applicant's claims do not require actually performing any drilling/working/cutting steps at all. The statements in independent Claim 57 that the first type of cutting tool is for working a specific type of material and that the second type of cutting tool is for working a different type of material are simply statements of intended use (e.g., the intended use of the "homogeneously" and "inhomogeneously" coated drills of Leyendecker et al.) and are not read as limitations into a "method" claim.

Conclusion

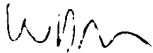
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wesley D Markham whose telephone number is (703) 308-7557. The examiner can normally be reached on Monday - Friday, 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (703) 308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

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March 3, 2003

Wesley D Markham
Examiner
Art Unit 1762



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